

Deschampsia calyculata Presl

Botany of the U.S.
Exploring Expedition -
California, Oregon &
Washington Territory -

Gramineae
By G. Thurber

Recd April 14th 1861 -

Ord. Gramineæ.

1. Leersia, Soland.

1. Leersia oryzoides, Swartz.

Leersia oryzoides, Swartz, Fl. Ind. Occ. 1, p. 132; Husb.
Gram. 1, t. 35.

Hab. Sacramento &c. California.

2. Phalaris, Linn.

1. Phalaris intermedia, Bosc.

Phalaris intermedia, Bosc in Poi. Encycl. 1, p. 300.

P. microstachya, DC. Cat. 131; Trin. Icon. t. 77.

P. Americana, Ell. Sk. Bot. S. Am. & Geo. 1, p. 101.

P. angusta, Nees in Mart. Fl. Bras. 2, p. 391; Trin.
Icon. 7, t. 78.

P. trivialis, Trin. Phalarid. p. 10.

P. occidentalis, Nutt. Fr. arb. Terr. p. 144.

P. Californica, Hook. & Arn. Bot. Beechey, p. 161.

Hab. San Francisco, California

2. Phalaris arundinacea, Linn.

Phalaris arundinacea, Linn. Sp. Pl. ed. 1, p. 88; Host, Gram. 2, t. 33;

P. Americana, Torr. Flor. 1, p. 100.

P. Japonica, Steud. Syn. Plant. Japon. 1, p. 11.

Dyrraphis arundinacea, Trin. Fund. p. 127.

Hab. Sacramento, Spokane & Okanogan Rivers.

3. Phleum, Linn.

1. Phleum alpinum, Linn.

Phleum alpinum, Linn. Sp. Pl. p. 88; Host, Gram. 3, t. 10; Trin. Icon. 2, t. 21.

Hab. Cascade Mountains.

2. Phleum alpinum, var. tenue, Trin.

Phleum alpinum var. tenue, Trin. Ic. t. 22.

Hab. Wasqually.

4. Alopecurus, Linn.

1. Alopecurus geniculatus, Linn.

Alopecurus geniculatus, Linn. Spec. Pl. p. 89; Host, Gram. 2, p. 32; Trin. Icon. 4, t. 42.

A. julius, ~~Smith~~ Engl. Bot. t. 146.

A. aristulatus, Michx. Fl. 1, p. 43.

Hab. Spokane.

5. Hierochloa, Gmelin.

1. Hierochloa borealis, Roem. & Schult.

Hierochloa borealis, Roem. & Schult. Syst. 2, p. 513.

H. repens, Beauv. Agrostid. p. 62.

H. arctica, Presl. Rel. Haenk. 1, p. 252.

Holcus repens, Host. Gram. 3, t. 3.

Hab. Sacramento, nasqually & Siskiyou River

In some of the specimens the radical leaves equal the culm.

6. Paspalum, Linn.

1. Paspalum distichum, Linn.

Paspalum distichum, Linn. Herb. (fide Munro.); Swartz.

Obs. p. 35, t. 2, f. 1; Trin. Icon. 10, t. 120.

P. notatum, Flügge, Monogr. p. 106; Trin. Icon. 10, t. 114.

Hab. Sacramento; found also in the Southern Atlantic States, Texas, Northern Mexico & Brazil.

7. Panicum, Linn.

1. Panicum agrostoides, Spreng.

Panicum agrostoides, Spreng. Pug. 2, p. 4; Trin. Icon. 22, t. 261.

P. agrostoidiforme, Lam. Ill. 1, p. 172.

Hab. Sacramento,

2. Panicum capillare, Linn.

Panicum capillare, Linn. Sp. Pl. p. 86; Host. Gram. 4, t. 16, ~~Fig.~~
200.

Hab. Sacramento.

3. Panicum capillare, var. major.

Panicula pauciradiata, radiis robustis solitariis vel
binis; spiculis squilinealibus, acuminatis, plerumque
trispicillatis.

Hab. Sacramento.

We have from numerous localities, west of the
Mississippi, specimens which, although they vary
widely from the typical plant, we have referred
to P. capillare. We should consider the variety here
indicated as a distinct species did not intermediate
specimens connect it with ^{the} ordinary form. In the
same specimen there is a considerable difference
in the length of the lower glume. Habit & foliage as
in P. capillare.

4. Panicum pauciflorum, Ell?

Panicum pauciflorum, Ell. Sk. Bot. L. Cal. & Geo. 1, p. 120?; Gray,
Man. Ed. 2, p. 579.

Hab. O'Kanayan te.

Specimens from several localities occur in the collect-
ion, differing much in hairiness and size of panicle.
Were it not for the uniformly large size of the spikelets we
should refer them to the polymorphous P. dichotomum.

5. Panicum Crus-galli, Linn.

Panicum Crus-galli, Linn. Sp. Pl. p. 83; Host. Gram. 2, t. 19.

Echinochloa Crus-galli, Beauv. Agrost. p. 53.

Oplismenus Crus-galli, Kunth. Enum. 1, p. 143.

Hab. Sacramento.

8. Setaria, Beauv.

1. Setaria glauca, Beauv.

Setaria glauca, Beauv. Agrost. p. 53.

Panicum glaucum, Linn. Sp. Pl. p. 85; Host. Gram. 2, p. 16; Trin. Leon. 17, t. 195.

Hab. Sacramento.

9. Eriocoma, Nutt.

1. Eriocoma cuspidata, Nutt.

Eriocoma cuspidata, Nutt. Gen. 1, p. 40.

Stipa membranacea, Pursh, Fl. 2, p. 728.

S. hymenoides, Roem. & Schult. Syst. 2, p. 339.

Brachne lanata, Linn. Panic. p. 126.

Fendleria rynchelyboides, Steud. Syn. Plant. Glum. 1, p. 420.

Hab. North ranch of the Columbia.

10. Oryzopsis, Richard.

1. Oryzopsis exigua.

Panicula contracta; radiis solitariis binisve, erectis, subsecundis, unifloris; glumis obtusis, mucronatis, flosculis

piloso paulo brevioribus; arista glumis subaequantibus; antherarum loculis apice barbatis. *

Minutely puberulent throughout. Culm slender and wiry, 8-10 inches high. Leaves 2-3 inches long, narrow, convolute, rigid and pungent; sheaths shorter than the internodes; ligule rather exceeding a line in length, lacerate at the apex. Panicle 1-1 1/2 inch long; rays mostly in pairs, one about equalling the flower, the other twice its length. Glumes 2 lines long, obtuse and mucronate, puberulent, ciliate at the apex, turning purple with age, about one fourth shorter than the floret, which has a very short rounded callus with a few short hairs. Lower palea 1-nerved, clothed with scattered hairs, minutely punctulate, bearing just below the apex a slightly tortuous rather persistent awn about its own length; upper palea as broad as the lower, slightly exceeding it in length, faintly two-nerved and strongly involute. Stamens 3, hairy at apex. Styles 3 (sempa?), elongated and exserted at the apex of the floret. Squamulae 2, as long as the ovary, lanceolate, inequilateral. In two florets three styles were distinctly made out, the other specimens were too much advanced to enable us to determine if this is a constant character.

The species is most nearly allied to *O. canadensis*, from which it differs in its simple & contracted panicle & shorter glumes and awn.

* Hab. Cascade Mountains.

11. Stipa, Binn.

1. Stipa emirens, Cav.

Stipa emirens, Cav. Icon. 5, p. 42; t. 467, f. 1.

S. mucronata, H.B.K. 1, p. 103.

Hab. North Branch of the Columbia.
The panicle, only, of what appears to be this species.

2. Stipa viridula, Trin.

Stipa viridula, Trin. Act. Petrop. 1836; Trin. & Rupr. Stipac. p. 57.

S. parviflora, Nutt. Gen. 1, p. 59.

S. Nuttalliana, Stud. Nomencl. 2, p. 643.

Hab. Nargally, North branch of Columbia &c.

3. Stipa comata, Trin. & Rupr.

Stipa comata, Trin. & Rupr. Stipac. p. 75.

S. juncea, Nutt. Gen. 1, p. 58.

S. capillata, Hook. Fl. Bor.-am. 2, p. 237.

Hab. Okanagan & North Branch of Columbia.

4. Stipa occidentalis,

Panicula contracta, radiis inferioribus bi-tri-ternatis
paucifloris, supremis solitariis unifloris; glumis lan-
ceolatis acuminatissimis; flosculis albo-pilosis
brevis coronatis glumis paullo brevioribus; aristis figenico-
ulatis inferne breviplumosa; antheris nudis.

Hab. south branch of the Columbia & Kanagan.

Stems slender, 1-1½ foot high, purplish, minutely scabrous with slightly pubescent nodes. Leaves 4-5 inches long, filiform, scabrous; sheaths shorter than the internodes; ligule 2-3 lines long, lacinate at the apex. Panicle 3-4 inches long, rays mostly erect, the lower 1 inch long, 1-2, rarely 3-flowered. Spikelets short pedicelled. Lower glume 5-nerved, 5 lines long, the upper one somewhat shorter and indistinctly 3-nerved. Inferior palea 3 lines long, brownish at maturity, ~~having~~ hairy throughout, having a short but distinct corona and a minute white-bearded callus; superior valve ¾ the length of the other. Stem 1½ inch in length, mostly twice bent, plumose to the upper articulation with rather coarse hairs, the uppermost of which are much shorter than those near the flower.

The same species has since been collected by Doct. Nuttall on the Colorado of the West.

12. Aristida, Sw.

1. Aristida purpurea, Nutt.

Aristida purpurea, Nutt. Fl. Ark. Terr. p. 145.

A. aquiramea. Schult. in Linnaea, 22, p. 343.

Hab. Walla Walla.

9
13. Sporobolus, R. Brown.

1. Sporobolus cryptandrus, Gray.

Sporobolus cryptandrus, Gray, Man. Ed. 2, p. 542.

Agrostis cryptandra, Torr. in Ann. Lyc. N. Y. 1, p. 151.

Vilfa cryptandra, Trin. Agrostid. 1, p. 49.

V. Trincana, Steud. Syn. Plant. Glum. 1, p. 157.

Hab. With the preceding.

2. Sporobolus ramulosus, Kunth.

Sporobolus ramulosus, Kunth Gram. 1, p. 68.

Vilfa ramulosa, H. B. K. 1, p. 137, t. 684.

Agrostis ramulosa, Roem. & Schult. Syst. 2, p. 361.

A. minutissima, Steud. Syn. Plant. Glum. 1, p. 171.

Hab. Walla Walla.

The lower palea sometimes bears a minute mucro from the prolongation of the midnerve, a condition which is more frequently to be observed in the specimens from New Mexico.

14. Polypogon, Desf.

1. Polypogon fugax, Nees.

Polypogon fugax, Nees in Herb. Boyle; Steud. Syn. Plant. Glum. 1, p. 184.

Hab. San Francisco.

Trinius refers this to P. Monspelienensis, but it seems to be different from any specimens of that species that we have seen. Our specimens quite accord with Himalayan ones received from Munro as P. fugax.

15. Gastridium, Beauv.

1. Gastridium australe, Beauv.

Gastridium australe, Beauv. Agrost. t. 6, f. 6.

Milium lundigerum, Linn. Sp. Pl. p. 91.

Agrostis australis, Linn. Mant. 1, p. 30.

Hab. San Francisco.

16. Agrostis, Linn

1. Agrostis scabra, Willd.

Agrostis scabra, Willd. Spec. Pl. 1, p. 370.

A. laxiflora, Richards. App. p. 3.

A. Michauxii, Trin. Gram. uni- et sesquifl. p. 79. (pro parte)

Trichodium laxiflorum, Michx. Fl. 1, p. 42, t. 8.

Hab. Gray's Harbor.

2. Agrostis canina, Linn.

Agrostis canina, Linn. Sp. Pl. p. 92; Host. Gram. 4, t. 3.

Agraulus caninus, Beauv. Agrost. t. 4, f. 7.

Hab. Near the mouth of the Spokane.

3. Agrostis' eparata, Trin.

Agrostis' eparata, Trin. Gram. uni- et sesquifl. p. 267 + Leon. 3, t. 27.

A. asperifolia, Trin. Agrostid. 2, p. 71.

A. pallens, Trin. Agrostid. 2, p. 82.

A. Schideana, Trin. Agrostid. 2, p. 81.

Hab. Numerous localities in California and northward.

This seems to be a very variable species as to size and foliage as well as in the character of the flower. The upper palea is frequently obsolete, and the lower awned or awnless. The synonymy given above is from some copious manuscript notes kindly furnished by Munro.

17. Calamagrostis, Adams.

1. Calamagrostis Canadensis, Beauv.

Calamagrostis Canadensis, Beauv. Agrost.

C. Mexicana, Nutt. Gen. 1, p. 46.

Arundo Canadensis, Michx. Fl. 1, p. 73.

Hab. Spokane.

2. Calamagrostis Aleutica, Trin.

Calamagrostis Aleutica, Trin. in Bong. Veg. Sitcha p. 71.

Hab. Gray's Harbor.

1-2
The specimens, which are somewhat doubtfully referred to this species, have very stout culms three feet high, The axis and rays of the panicle and base of the glumes are of a blackish purple color; the upper portion of the glumes brownish. The very delicate awn is inserted above the middle of the palea and about equals it while the rudiment and the hairs of the callus are less than half its length.

18. Phragmites, Trin.

1. Phragmites communis, Trin.

Phragmites communis, Trin. Flind. p. 134.

Arundo Phragmites, Trin. Sp. Pl. p. 120; Beauv. Agrost. t. 12, f. 2.

Hab. Sacramento and Puget's Sound.

19. Spartina, Schreb.

1. Spartina gracilis, Trin.

Spartina gracilis, Trin. Agrostid. 1, p. 88.

Hab. Okanagan.

2. Spartina stricta, var. foliosa.

Spartina foliosa, Trin. Agrostid. 1, p. 92.

Hab. San Francisco.

This is doubtless the plant described by Trinius and is only a form of the variable S. stricta with the leaves crowded at the top of the culm and equalling or exceeding the panicle.

20. Aira, Guin.

1. Aira danthonioides, Trin.

Aira danthonioides, Trin. in Act. Bot. 1830, 1, p. 57. + Icon. t. 257.

Deschampsia danthonioides, Munro in Benth. Plant. Hartweg. p. 342.

S. calycina, Presl Rel. Huenk. 1. p.

Hab. Spiken River and North branch of the Columbia.

2. Aira elongata, Hook.

Aira elongata, Hook. Flor. Bor.-Am. 2, p. 243, t. 228.

Deschampsia elongata, Munro in Benth. Plant. Hartweg. p. 342.

Hab. Gray's Harbor, Nasqually, etc.

The specimens are from a number of localities and vary in height from a few inches to two feet.

The hairy abortive pedicel is frequently as long as the floret below it.

3. Aira cespitosa, var. longiflora, Trin.

Aira ~~longiflora~~ cespitosa, var. longiflora, Trin. in Herb. Torr.

Hab. Nasqually and North branch of the Columbia.

Some of the specimens are four or five feet tall
with the large panicle of a fine bronze color;
they quite agree with authentic ones from Trinius.

21. Trisetum, Persoon.

1. Trisetum subspicatum, Beauv.

Trisetum subspicatum, Beauv. Agrost. p. 88.

T. airoides, Roem. & Schult. Syst. 2, p. 266.

Aira subspicata, Linn. Syst. Veg. 2.2, p. 91.

Hab. Cascade Mountains, West side,

2. Trisetum cernuum, Trin.

Trisetum cernuum, Trin. in Act. Petrop. 1830, 1, p. 161.

Avena cernua, Kunth, Enum. 1, p. 306.

Hab. East side of Cascade Mountains,

22. Avena, Linn.

1. Avena fatua, Linn.

Avena fatua, Linn. Sp. Plant. p. 118; Host. Gram. 2, t. 58.

Hab. Sacramento. Introduced.

23. Danthonia, DC.

1. Danthonia spicata, Beauv.

Danthonia spicata, Beauv. Agrost. p. 92, t. 18, f. 7; Trin. Icon. 5, t. 54.

Hab. Near the mouth of the Spokan.

15
2. Santhonia spicata, var. monostachya.

Hab. Spoken River and The North Branch of the Columbia.

A reduced state of S. spicata in which the culms are about six inches high, clothed with crowded sheaths and bearing a single terminal spikelet. The sheaths are hirsute with long spreading hairs, and the leaves, which exceed the reduced panicle are more or less hairy.

24. Poa, Lin.

1. Poa annua, Lin.

Poa annua, Lin., Sp. Pl. p. 89; Hist. Gram. 2, p. 64.

Hab. Nasqually.

2. Poa abbreviata, R. Brown.

Poa abbreviata, R. Brown in Parry's 1st Voy. App. p. cclxxxvii and cccix.

Hab. Puget's Sound, Port Discovery and Nasqually.

3. Poa nemoralis, Lin.

Poa nemoralis, Lin., Spec. Pl. p. 102.

Hab. Cascade Mountains, Spokane, Port Discovery etc.

We have included under this species a number of forms

Some of which have doubtless been described as distinct species, but we are at present unable to separate them.

25. Eragrostis, Beauv.

1. Eragrostis reptans, Nees.

Eragrostis reptans, Nees in Murt. Fl. Bras. 2, p. 514.

Poa reptans, Michx. Fl. 1, p. 69, t. 11,

P. hypnoides, Lam. Ill. p. 185.

P. curinata, Poir. Encyc. 5, p. 86.

P. capitata, Nutt. Fl. Ark. Terr. p. 146.

Megastachya reptans & hypnoides, Beauv. Agrost. p. 186.

Hab. Sacramento.

2. Eragrostis alba, Presl.

Eragrostis alba, Presl, Rel. Haenk. 1, p. 279.

Hab. Sacramento.

In the old plant the spikelets have from ten to fifteen florets. The lower palea generally bears a very minute mucro which is sometimes present and wanting in florets of the same spikelet.

26. Brizopyrum, Link.

1. Brizopyrum spicatum, Hook. & Arn.

Brizopyrum spicatum, Hook & Arn. Bot. Beechey, p. 403.

B. boreale, Presl. Rel. Huanc. 1, p. 280.

Uniola spicata, Scribn. Sp. Pl. p. 104.

U. distichophylla, Roem. & Schult. Syst. 2, p. 596.

Festuca distichophylla, Michx. Fl. 1, p. 67.

Poa Michauxii, Kunth Gram. 1, p. 111 & 2, p. 533, t. 181.

Hab. San Francisco and Bragg's Harbor.

2. Brizopyrum spicatum, var. strictum.

Uniola stricta, Torr. in Ann. Lye. N.Y. 1, p. 155 & in Marcy's Rep. t. 20.

U. multiflora, Nutt. Fl. Ark. Terr. p. 148.

Hab. Sacramento and Nasqually.

In some of the specimens from the latter locality the ~~culm~~ summit of the culm, probably from being injured by insects, is developed in a curious manner so as, at first sight, to resemble the spikes of some Chlorideous grass.

27. Glyceria, R. Brown.

1. Glyceria nervata, Trin.

Glyceria nervata, Trin. in Act. Petrop. Per. 6, 1, p. 365.

G. Michauxii, Kunth-Gram. 1, p. 118, & 2, p. 343, t. 85.

Poa nervata, Willd. Sp. Pl. 1, p. 389.

P. stricta, Michx. Fl. 1, p. 69.

P. parviflora, Pursh, Fl. 1, p. 80.

Hab. Spokane and Grays Harbor.

2. Glyceria pallida, Trin.

Glyceria pallida, Trin. in Act. Botrop. 1836, p. 57.

Trivodia pallida, Spreng. n. ~~Entod.~~ Entd. 1, p. 246.

Windsoria pallida, Torr. Cat. Pl. N. York, p. 92.

Poa dentata, Torr. Fl. 1, p. 107.

Urelepis? pallida, Kunth Gram. 1, p. 108.

Hab. Mulla Mulla,

3. Glyceria Nuttalliana,

Poa airoides, Nutt, Gen. 1, p. 68.

P. Nuttalliana, Roem. & Schult. Mant. 2, p. 303.

Festuca? Nuttalliana, Kunth Gram. 1, p. 129.

Hab. Kasqually.

4. Glyceria vultosa.

Culmo basi vultoso; panicula radiis 2-3-natis inaequalibus paucifloris; spiculis brevipedicellatis 4-6-floris, flore superiore imperfecto; glumis obtusis inferiore uninervia, superiore quinquenervia duplo majore; paleis subaequalibus inferiore septemnervia rugosa, superiore apice truncata, carinis ciliatis

Hab. Cascade Mountains,

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Culms about a foot high, slender, erect from a bulbous base, clothed below with scarious sheaths. Strongly striate, retroarsely pubescent. Leaves 4-5 inches long, 1-1½ line wide, flat, erect, somewhat rigid, pilose pubescent especially on the under surface and near the base; sheaths longer than the internodes, closed, loose, striate and pubescent; ligule over a line in length, lacerate dentate at the apex. Panicle 4-6 inches long; rays remote, angled; the lower 2-3-nate with one much the longest and several flowered; upper rays solitary and very short. Spikelets short pedicelled, 5-6 lines long, mostly 6-flowered, the florets distant upon a soft flexuous rachis. Glumes unequal, obtuse, the lower 1-nerved and about half the length of the upper one which is scabrous on the mid-nerve and equals the lower floret. Paleae nearly equal, the lower obtuse entire at the scarious apex, very convex on the back, strongly 7-nerved, minutely scabrous throughout; the upper one very broad, the strong nerves ciliate, truncate, entire at the apex. Symmetrical completely united, truncate, somewhat fleshy, half as long as the ovary. Stamens three. Ovary slightly stipitate, styles two, long and slender above, divergent at the thickened bases which when the upper portion falls away are left as horns to the ovary; stigmas with copious branching hairs.

5. Glyceria angustata.

Poa angustata, R. Brown in Parry's 1st Voy. App. ccxxxvii + cccix.

P. phryganodes, Trin. in Act. Botrop. Ser. 6, 1, p. 389.

P. Nutkaensis, Presl Rel. Haenk. 1, p. 272.

Atropis angustata, Griesb. in Ledeb. Fl. Ross. 4, p. 390.

Hab.

28. Sclerochloa, Beauv.

1. Sclerochloa Californica, Munro.

Sclerochloa Californica, Munro in Benth. Plant. Hartweg. p. 342.

Eragrostis Fendleri, Steud. Syn. Plant. Glum. 1, p. 278.

Hab. Port Discovery.

29. Loophoclaena, Nees.

1. Loophoclaena Californica, Nees.

Loophoclaena Californica, Nees in Tagl. Ann. Nat. Hist. 1, p. 283.

Hook. & Arn. Bot. Beechey, p. 403, t. 95.

Pleurapogon Douglasii, Trin. in Steud. Syn. Plant. Glum. 1, p. 292.

Hab. Cascade Mountains.

This seems to be a very rare plant, a solitary specimen only was collected.

29 ~~30~~. Melica, Linn.

1. Melica poaeoides, Nutt.

Melica poaeoides, Nutt. Plant. Gamb. p. 188; Torr. in Whipp. p. 157
M. bulbosa, Meyer in Hook. New Gard. Misc + Jour. Bot. 8. p. 19,

Hab. North branch of The Columbia.

The enlargement at the base of the culm seems to have escaped the notice of Nuttall and others who have collected the plant in California. Nuttall describes the spikelets as bearing only two perfect flowers; we more frequently find three or four. The veins of the glumes and paleae anastomose towards the apex, as they do in some other species of this genus. Lower palea three lines long and in the old plant splitting at the apex. Fruit with a solitary pericarp.

30. Koeleria, Persoon.

1. Koeleria cristata, Pers.

Koeleria cristata, Pers. Syn. 1, p. 97.

K. nitida, Nutt. Gen. 1, p. 74.

Aira cristata, Linn. Sp. Pl. p. 94.

Hab. Kasqually, Okanogan and numerous other localities.

31. Festuca Linn.

1. Festuca Myurus, Linn.

Festuca Myurus, Linn. Sp. Pl. p. 109; Host. Gram. 2, t. 93.

Hab. San Francisco.

2. Festuca microstachya, Nutt.

Festuca microstachya, Nutt. Plant. Gamb. p. 187; Torr. in Whipp. Rep. p. 156.
Vulpia microstachys, Munro in Benth. Plant. Hartweg. p. 342.

Hab. Nasqually, North branch of the Columbia &c.

The collection contains a great variety of forms, some of which quite agree with Nuttall's original specimens while others differ from them greatly in size and aspect as is noticed by Torrey in the Botany of Whipple's Report. Nuttall in his description has inadvertently stated that it is the ^{lower} ~~upper~~ glume that is three-nerved instead of the upper one.

3. Festuca ovina, var. duriuscula, Gray

Festuca ovina, var. duriuscula, Gray Man. Ed. 2. p. 566.
F. duriuscula, Lein. Sp. Pl. p. 108; Host. Wam. 2, t. 83.

Hab. Spokane, North branch of the Columbia etc.

4. Festuca pauciflora, Thunb.

Festuca pauciflora, Thunb. Fl. Jap. p. 52.
F. occidentalis, Hook. Fl. Bor.-Am. 2, p. 249.
F. parvigluma, Steud. Syn. Plant. Glum. 1, p. 305.
F. remotiflora, Steud. l.c. p. 315.

Hab. Nasqually and Cascade Mountains.

Some of the specimens quite agree with the F. occident-

alis of Hooker while others have somewhat longer glumes. The synonymy given upon the authority of Munro.

32 ~~33~~. Bromus, Linn.

1. Bromus carinatus, Hook & Arn.

Bromus carinatus, Hook. & Arn. Bot. Beechey p. 403.

Hab. Mesqually.

2. Bromus breviaristatus,

Geratocloa breviaristata, Hook. Fl. Bor.-Am. 2, p. 253, t. 234.

Hab. Mesqually.

This, as Hooker remarks, is very near B. unioides, but the specimens, as well as one from the original stock, in Herb. Torr. are ⁱⁿ too imperfect a state for satisfactory comparison.

3. Bromus Hookerianus,

Geratocloa grandiflora, Hook. Fl. Bor.-Am. 2, p. 253, t. 235.

Hab. Willamette, Walla Walla &c.

33 ~~34~~. Triticum, Linn.

1. Triticum repens, Linn.

Triticum repens, Linn. Sp. Pl. p. 128; Host. Gram. 2, t. 21.

Hab. San Francisco, Walla Walla, &c.

35. Elymus, Scinn.

1. Elymus Sibiricus, Scinn.

Elymus Sibiricus, Scinn. Sp. Pl. p. 123.

E. villosus (B. globiusculus), Trin. in Bot. Whipp. Rep. p. 157.

Hab. Satchap and Spokane Rivers.

2. Elymus Canadensis, Scinn.

Elymus Canadensis, Scinn. Sp. Pl. p. 123.

Hab. Walla Walla.

3. Elymus arenarius, Scinn.

Elymus arenarius, Scinn. Sp. Pl. p. 122.

Hab. Port Discovery.

4. Elymus mollis, Trin.

Elymus mollis, Trin. in Spreng. n. Endt. 2, p. 72.

Hab. Port Discovery and Puget Sound.

5. Elymus dasystachys, Trin.

Elymus dasystachys, Trin. in Ledeb. M. t. 249.

E. mollis, R. Brown in Frankl. Journ. vol. 2, App. p. 3.

Hab. Walla Walla.

6. Elymus condensatus, Presl.

Elymus condensatus, Presl. Rel. Haenke, 1, p. 265.

Hab. North Branch of The Columbia.

36. Hordeum, Linn

1. Hordeum pratense, Huds.

Hordeum pratense, Huds. Angl. p. 56; Engl. Bot. t. 409.

H. adscendens, H. B. K. 1, p. 180.

Hab. Gray's Harbor and Rukaski.

37. Sitanion, Raf.

1. Sitanion Elymoides, Raf.

Sitanion Elymoides, Raf. in Journ. de Phys. 89, p. 103.

Aegilops hystrix, Nutt. Gen. 1, p. 86.

Elymus? Sitanion, Roem & Schult. Mant. 2, p. 426.

Polyanthus hystrix, Presl in Engl. Ann. Nat. Hist. 1, p. 284.

Elymus v. nov. gen. For. in Nicolle's Rep. p. 165.

Hab. Sacramento, North branch of The Columbia &c.

The specimens vary very much in the length of the awns, and in some the leaves & sheaths are very ~~soft~~ hispid with soft hairs.

Names from Dr. Chap. Mann Feb. 66.

Amphicarpum - *Floridanum* Chap.

Cenchrus behrii L. Chap. H. ?
cf. *C. hyemalis*.

Paspalum procurrens Walt.

P. distichum L.
P. vaginatum Chap. H.

P. notatum Kluge ?
P. distichum Chap. H.

P. Walteri Sch.

Panicum colonum L.
P. Walteri Sch.

P. digitarioides Kunth ?
P. Curtisii L.

P. japonicum L.

P. ...

P. ... ?

P. ...

P. ... ?

P. ...

P. ...

P. ... ?

186

Wm. H. H. H.

401 BROADWAY

CRIMLINE SPRINGS

WASHBURN & MOENS CELEBRATED

Sole Agents for

SKIRT & CORSET MANUFACTURERS

S. J. B. H. H.

OFFICE OF

Diagram 8-2 - 11

Des Gouez & Pelletier Grains

Panicum Crus Gallii

Riv Verde - 464

Panicum obtusum HBK.

Riv Verde - 490

Panicum Turgidum

Riv Verde - 479

Panicum capillare

64 - 405

Ectocarpus

pl. S.

406

498 - *Arctostaphylos* L.
549 - *Arctostaphylos* L.

55 - *Panicum* (or *Stenotaphrum*) *Panicum* - L.
+ = *P. Bermanianum* Trin -

592 & 592' may be forms of *Setaria*
canadensis Rich or *S. Setosa* Beauv - if in
dist. there are not the same -

675 - *Panicum* *decoratum* L.

5811 - ——— *gigas* L. - the fls in
the sheath are very large -

734 - *Stenotaphrum* *egyptium* L -

5812 - *Euphorbia* *humboldtii* Kth -

739 - very variable plant as to foliage -

639 { *Bouteloua* *Humboldtiana* Presl

656 } *Eriocaulon* *pinnatifidum* Kth -

740 - *Eriocaulon* *pinnatifidum* Kth -

601 - *Arctostaphylos* *peruviana* -
= slender. flowers spec -

59 - *Arctostaphylos* *peruviana* L.
has *Euphorbia* *humboldtii* Kth in flower
in all the summer & fruit -

20 - *Arctostaphylos* *pinnatifidum* Kth -

640 - ——— *oxylobus* Trin
wh. fls. with spec -

103 - *Arctostaphylos* *peruviana* L.
var *concolor* L. -

Alto

Henry

...

...

P.S.

Am just down from Stratham, N. Hampshire.
Came across a m^{ow}ing lot there with large
patches of some reedy looking grass
(cut down) that I did not recognize.
Does the Phalaris ever make a
nuisance of itself in that way?

Did you wish this lot of MSS. returned? you
do not say. S.W.

Special Enquiries to the Editor. -

anthrax anthraxis - Has any one yet noticed
this as an introduced agent in California?
See 15 p. 6, Cal. or. - 1900

Hirvohvii borealis. - common in Wash. Terr.

11. *alpinus*: n. Pacific opp. Coast -

I doubt either of them be described? The
note respecting the first is probably sufficient.

Alopecurus peruvianus, region boundary

Respect fully

are these near enough to be
same the same? Yes and no

Paspalum. 793. californicum. var. - This
+ Herb. For - 25

Use appears to have
 much doubt if it came from
 in only a few there is no doubt
 "Calif. in some plants, which are not to be found in the U.S. with?"
 Setaria Candida - not found in the U.S. with?

Setaria candelaria - 10 ft. -
in the field - in long dry and
sandy Basin - also in some
low 2 ft. - not in 10 ft. -

1. Enigmonia, Alloy is 200. an. ind.
 2. 7. I have not this either
 specimen or des. - Poland has not
 taken it up in his list made for the
 state reg. - It he des. is wh
 1.

Amateurs will doubtless be interested
though I have no more of it. It may as well
go in.

A day or so ago
you know it, doesn't it?

On subjects

orthography

... it is not ...

The Palmer Island
of Palmer is the one in the Gulf
of sub. and outside of our range.

About the use of numerals.

They are generally employed
through the U.S. Calif., as readily
catching the eye & saving space,
— without dash for connective
i.e. 4 to 6, or 4 or 5, not 4-6 or.

I follow Dr. Gray pretty closely in
his ~~former~~ use of colons & semi-
colons — but you need not bother
about that. I will see that it is
made right for the printer
before he gets it.

Your MS. does very well indeed & I see
no special need for criticism or
suggestion. I think you may be
trusted to follow your own most
determination of Green's grass now
needed except for the Verang. It

had got laid away and came near not
getting to you.

Yours very truly
S. M. Watson

Ipomaea alba, Lindl.

Aristida

A. bromoides "fide O"
Williams Fork - Palmer 542 -

A. ? -

Coulter no 768 -

See has not any Aristida / Arctostaphylos,
California nor "A. dispersa?"

Volcanthus subtilis

Joseph Howell,
Sausalito -
Oregon -

Alopecurus aristulatus -

Empire City Nevada - Torr. 590.

Sierra 6006: fl. bluish -

* Oregon (Herb. Gray)

Alopec. calopictus Torr. (1) -

Oregon - Bon. & Horn, Leyell
Herb. Gray

Alopec. pratensis - "slender form"

Oregon - Hall 611.

Hartweg 2026 -

Pinus alpestris -

Oregon Hall - 610 -

Calif. Bridges - 367 -

S. ... in Trin -
390? ...
Cal - ...

S. ... in Trin -
... Lake - ... 575.
... Lakes. ... 73 - 1104-8

Stipa - sp
... Lake, ... 579 - ...

Stipa ...
... 4000 ft! 1872)

"S. ..."
(1872)

... 2028 ...

S. ...
... 3020 -
Oregon, Hall, 625 -

S. ...
Saskatchewan
Lake Superior (Michigan)

Pan scoparium - Cascade Mts. - Leyall -
672 - Hall - Oregon

Anthephora Elegans (P. in Ant ?)

Ceph. St. Lucas, Linn. Cat.

Xanthus, Br. St. -

Hesperis matronalis G. Müll. Bot Zeit. 1867. p. 344
Austin Sep. Hall 824

Abbr. 2087. 449. 656 Wright (B. L. best part) -

Hesperis matronalis, G. Müll. -

Dr. Sep. 366 - Lindb. ⁵⁶⁶ 90. Wright (47) 791 -

Platanus latifolia H. B. K.

" Linn. Cat. 1759

gray pines in
Ericaceae in the Alps

Lindb. 723-722

also - Berckley
"Fam. Terebinthaceae"

Ceanothus, b. L. Lindb.

var. paniculatus Nutt. -

Superb. St. Lucas - Xanthus, 115

Juniperus communis - L. - Linn. Cat.

also - Lindb. - Palmer - 14

Notes Herb Gray

Hervecton Alpine B & S =

~ Pacific Expt. Ex -

Arakambetoten

H. borealis - Alaska - Dall

H. borealis Herb. Gray - 786 (or 4) Coulter -
Cal is = H. macrophylla, Thunb

Rusjalin -

790 Coulter

Panicum

P. Colomina, San Diego Co. Palmer - 419 -

S. bigelovii - much l. glauc - Cal. Coulter - no num. -
ben -

Panicum 275 S. Pfeiffer - W 385 - Panicum? - like
P. capillare.

P. dichotomum, 2024 Hartweg -

" Oregon Boundary, Cascade Mts., form =
" P. pubescens Lam. -

" Sierra Co. Cal. Beaman 682.

" Oregon - 671 Bull.

" Cal. - 366 - Bridges

" Black's Ranch 1/2 mi. from

Tristramus Karayi

Corolla about 1 inch. ~~Corolla~~
 persistent, ~~corolla~~, persistent. The scales
 below purple & below white, orange
 & ~~white~~

Means about a line west - Strongly
strongly persistent atmospheric

Surface - nearly horizontal below
conglomerate & contains at base
by the upper surface. A

There should be

Leaves a heavy grey
sheath loose, slightly pubescent
when the string below -

Panicle, open - Rays in
 pairs of ~~distichous~~ ^{distichous} to ^{transverse}
 and a ^{small} ^{number} ^{above} the
 middle - ^{with the apex} strongly flattened or 3-angled
 and conspicuously ciliate fringed
 in the angles ^{simple} Pale yellowish green
 filaments on pedicels mostly ^{linear}
 longer than themselves a dense of
 ann 3" -

Ann 3 -
 Glebe. Greenhouse. Stagnant air
 lanceolate, gentle or slender, a cluster
 margins the upper one third longer
 entire smooth
 are darkly dyed, blue flower
 lateral veins. Short. Protruding and
 app - 17. center. Distinct

app -
filices burrulate, with distinct
rounded lobes - especially above
brownish scarious, pubescent - fronds
above blue pubescent - veins terminated by
a stout rough one about nearly with
its own length - inserted at or very slightly
below apex - in the time of pubescence

Below agree -
 No deal Sunday in the time & pressure
 quite small. This is a strongly 2nd
 impossible to be, needs to be a very
 the strongly as to the
 the strongly as to the

Reddish green by 1/2 as long as flowers - scales
 being a small one with
 higher seeds at base, or are highest
 point of the anthering to top of plant

Scales acute acuminate ^{irregular} ₂₀ ²¹ ₂₁ ²² ₂₂ ²³ ₂₃ ²⁴ ₂₄ ²⁵ ₂₅ ²⁶ ₂₆ ²⁷ ₂₇ ²⁸ ₂₈ ²⁹ ₂₉ ³⁰ ₃₀ ³¹ ₃₁ ³² ₃₂ ³³ ₃₃ ³⁴ ₃₄ ³⁵ ₃₅ ³⁶ ₃₆ ³⁷ ₃₇ ³⁸ ₃₈ ³⁹ ₃₉ ⁴⁰ ₄₀ ⁴¹ ₄₁ ⁴² ₄₂ ⁴³ ₄₃ ⁴⁴ ₄₄ ⁴⁵ ₄₅ ⁴⁶ ₄₆ ⁴⁷ ₄₇ ⁴⁸ ₄₈ ⁴⁹ ₄₉ ⁵⁰ ₅₀ ⁵¹ ₅₁ ⁵² ₅₂ ⁵³ ₅₃ ⁵⁴ ₅₄ ⁵⁵ ₅₅ ⁵⁶ ₅₆ ⁵⁷ ₅₇ ⁵⁸ ₅₈ ⁵⁹ ₅₉ ⁶⁰ ₆₀ ⁶¹ ₆₁ ⁶² ₆₂ ⁶³ ₆₃ ⁶⁴ ₆₄ ⁶⁵ ₆₅ ⁶⁶ ₆₆ ⁶⁷ ₆₇ ⁶⁸ ₆₈ ⁶⁹ ₆₉ ⁷⁰ ₇₀ ⁷¹ ₇₁ ⁷² ₇₂ ⁷³ ₇₃ ⁷⁴ ₇₄ ⁷⁵ ₇₅ ⁷⁶ ₇₆ ⁷⁷ ₇₇ ⁷⁸ ₇₈ ⁷⁹ ₇₉ ⁸⁰ ₈₀ ⁸¹ ₈₁ ⁸² ₈₂ ⁸³ ₈₃ ⁸⁴ ₈₄ ⁸⁵ ₈₅ ⁸⁶ ₈₆ ⁸⁷ ₈₇ ⁸⁸ ₈₈ ⁸⁹ ₈₉ ⁹⁰ ₉₀ ⁹¹ ₉₁ ⁹² ₉₂ ⁹³ ₉₃ ⁹⁴ ₉₄ ⁹⁵ ₉₅ ⁹⁶ ₉₆ ⁹⁷ ₉₇ ⁹⁸ ₉₈ ⁹⁹ ₉₉ ¹⁰⁰ ₁₀₀ ¹⁰¹ ₁₀₁ ¹⁰² ₁₀₂ ¹⁰³ ₁₀₃ ¹⁰⁴ ₁₀₄ ¹⁰⁵ ₁₀₅ ¹⁰⁶ ₁₀₆ ¹⁰⁷ ₁₀₇ ¹⁰⁸ ₁₀₈ ¹⁰⁹ ₁₀₉ ¹¹⁰ ₁₁₀ ¹¹¹ ₁₁₁ ¹¹² ₁₁₂ ¹¹³ ₁₁₃ ¹¹⁴ ₁₁₄ ¹¹⁵ ₁₁₅ ¹¹⁶ ₁₁₆ ¹¹⁷ ₁₁₇ ¹¹⁸ ₁₁₈ ¹¹⁹ ₁₁₉ ¹²⁰ ₁₂₀ ¹²¹ ₁₂₁ ¹²² ₁₂₂ ¹²³ ₁₂₃ ¹²⁴ ₁₂₄ ¹²⁵ ₁₂₅ ¹²⁶ ₁₂₆ ¹²⁷ ₁₂₇ ¹²⁸ ₁₂₈ ¹²⁹ ₁₂₉ ¹³⁰ ₁₃₀ ¹³¹ ₁₃₁ ¹³² ₁₃₂ ¹³³ ₁₃₃ ¹³⁴ ₁₃₄ ¹³⁵ ₁₃₅ ¹³⁶ ₁₃₆ ¹³⁷ ₁₃₇ ¹³⁸ ₁₃₈ ¹³⁹ ₁₃₉ ¹⁴⁰ ₁₄₀ ¹⁴¹ ₁₄₁ ¹⁴² ₁₄₂ ¹⁴³ ₁₄₃ ¹⁴⁴ ₁₄₄ ¹⁴⁵ ₁₄₅ ¹⁴⁶ ₁₄₆ ¹⁴⁷ ₁₄₇ ¹⁴⁸ ₁₄₈ ¹⁴⁹ ₁₄₉ ¹⁵⁰ ₁₅₀ ¹⁵¹ ₁₅₁ ¹⁵² ₁₅₂ ¹⁵³ ₁₅₃ ¹⁵⁴ ₁₅₄ ¹⁵⁵ ₁₅₅ ¹⁵⁶ ₁₅₆ ¹⁵⁷ ₁₅₇ ¹⁵⁸ ₁₅₈ ¹⁵⁹ ₁₅₉ ¹⁶⁰ ₁₆₀ ¹⁶¹ ₁₆₁ ¹⁶² ₁₆₂ ¹⁶³ ₁₆₃ ¹⁶⁴ ₁₆₄ ¹⁶⁵ ₁₆₅ ¹⁶⁶ ₁₆₆ ¹⁶⁷ ₁₆₇ ¹⁶⁸ ₁₆₈ ¹⁶⁹ ₁₆₉ ¹⁷⁰ ₁₇₀ ¹⁷¹ ₁₇₁ ¹⁷² ₁₇₂ ¹⁷³ ₁₇₃ ¹⁷⁴ ₁₇₄ ¹⁷⁵ ₁₇₅ ¹⁷⁶ ₁₇₆ ¹⁷⁷ ₁₇₇ ¹⁷⁸ ₁₇₈ ¹⁷⁹ ₁₇₉ ¹⁸⁰ ₁₈₀ ¹⁸¹ ₁₈₁ ¹⁸² ₁₈₂ ¹⁸³ ₁₈₃ ¹⁸⁴ ₁₈₄ ¹⁸⁵ ₁₈₅ ¹⁸⁶ ₁₈₆ ¹⁸⁷ ₁₈₇ ¹⁸⁸ ₁₈₈ ¹⁸⁹ ₁₈₉ ¹⁹⁰ ₁₉₀ ¹⁹¹ ₁₉₁ ¹⁹² ₁₉₂ ¹⁹³ ₁₉₃ ¹⁹⁴ ₁₉₄ ¹⁹⁵ ₁₉₅ ¹⁹⁶ ₁₉₆ ¹⁹⁷ ₁₉₇ ¹⁹⁸ ₁₉₈ ¹⁹⁹ ₁₉₉ ²⁰⁰ ₂₀₀ ²⁰¹ ₂₀₁ ²⁰² ₂₀₂ ²⁰³ ₂₀₃ ²⁰⁴ ₂₀₄ ²⁰⁵ ₂₀₅ ²⁰⁶ ₂₀₆ ²⁰⁷ ₂₀₇ ²⁰⁸ ₂₀₈ ²⁰⁹ ₂₀₉ ²¹⁰ ₂₁₀ ²¹¹ ₂₁₁ ²¹² ₂₁₂ ²¹³ ₂₁₃ ²¹⁴ ₂₁₄ ²¹⁵ ₂₁₅ ²¹⁶ ₂₁₆ ²¹⁷ ₂₁₇ ²¹⁸ ₂₁₈ ²¹⁹ ₂₁₉ ²²⁰ ₂₂₀ ²²¹ ₂₂₁ ²²² ₂₂₂ ²²³ ₂₂₃ ²²⁴ ₂₂₄ ²²⁵ ₂₂₅ ²²⁶ ₂₂₆ ²²⁷ ₂₂₇ ²²⁸ ₂₂₈ ²²⁹ ₂₂₉ ²³⁰ ₂₃₀ ²³¹ ₂₃₁ ²³² ₂₃₂ ²³³ ₂₃₃ ²³⁴ ₂₃₄ ²³⁵ ₂₃₅ ²³⁶ ₂₃₆ ²³⁷ ₂₃₇ ²³⁸ ₂₃₈ ²³⁹ ₂₃₉ ²⁴⁰ ₂₄₀ ²⁴¹ ₂₄₁ ²⁴² ₂₄₂ ²⁴³ ₂₄₃ ²⁴⁴ ₂₄₄ ²⁴⁵ ₂₄₅ ²⁴⁶ ₂₄₆ ²⁴⁷ ₂₄₇ ²⁴⁸ ₂₄₈ ²⁴⁹ ₂₄₉ ²⁵⁰ ₂₅₀ ²⁵¹ ₂₅₁ ²⁵² ₂₅₂ ²⁵³ ₂₅₃ ²⁵⁴ ₂₅₄ ²⁵⁵ ₂₅₅

Note from Mr. Watson

A. *Trinipes* Cav. ? . Ants

I find a couple of spikelets
marked, "San Diego Cal. 401 Palmer '75"
probably cribbed from Herb. Gray -
I find that so far as just these
two flowers go, they are closely
like *Blattaria sulcata* specimen.
I would not have included *Blattaria*
unique, had not this of Palmer
turned up - was his also a uniqueness?
- If he collected much of it was
it distributed? - Tell me what
to do with the thing.

A solitary fragment is marked Vilfa tricholepis.
For. Locality unknown. Cal." as this species has
not (otherwise) been known in Cal. or far west
of Rocky Mts. this must be an error.

A. tenuipes, Cav.? Culm apparently tall; panicle about a foot long, narrow, with appressed rays; glumes nearly equal, four or five lines long, the lower slightly shorter, both cuspidate; floret equalling or a very little longer than the glumes, hairy at base; lateral ~~setae~~ ^{anthers} ~~setae~~ about as long as the floret, the central one slightly longer, equally spreading. Cav. Trin & Rupr. Stipaceae, p. 123.
A. Humboldtiana, Torr in Pacif. R. R.

Report, V, p. 366.

Head of Tulare Valley, Blake. San Diego Co. Cal. Palmer (4011.)

A single weather-worn specimen, collected by Mr. Blake was doubtfully referred by Dr. Torrey to A. Humboldtiana, ^{min. Prop.} the same specimen was seen by Gen. Munro, who thought it more like A. tenuipes Cav. It was probably introduced from South America. Dr. Palmer collected what appears to be the same in San Diego Co.

Aristida

culm. apparently full, glabrous, sheaths smooth, pubes at throat. Panicle erect, pyramidal about 1 foot long. Bracts solitary or in pairs when they are united below. Branching ~~obscure~~ the middle, branches appressed, about 6 flowered. Glumes slightly unequal, the lower about 4 lines long. The upper 1/2 a line longer, cuspidate. Flower slightly exceeding the glumes. Lodicules setate equalling the flower. The central slightly longer, equally spreading, striate

Mead. of Tulare Valley, California Am.
Blake,

I suspect that this may be an introduced plant, probably from Mexico or South America. —
Cf. A. Humboldtiana Brit & Pursh.

Tilfa cuspidata[?], Forr. is a
Muhlenbergia rather than a tilfa
as its ^{manifest} callus, acute plumes, and distinctly
3-nerved and short-armed ~~repipes~~
lower part are all opposed to
the generic characters.

Culms 1 to 2

feet high, sometimes sparingly branched, very slender and forming tufts; leaves smooth, all very narrow, involute and setaceous, at least above, the radical ones about half equalling the culm, the leaves on which are shorter - 1 to 2 inches long, erect; ligule very minute; sheaths mostly shorter than the internodes, loose, smooth; panicle 2 to 3 inches long, very narrow, interrupted, spicoid, rays mostly in pairs, flower-bearing their whole length; spikelets $1\frac{1}{2}$ to 2 lines long; glumes nearly equal, acuminate pointed $\frac{1}{3}$ to $\frac{1}{2}$ shorter than the floret; lower palea acute, 3-nerved the central nerve spicant beyond the somewhat bifid apex as a nerve less than half a line long; minor hairy on the nerves, especially below, upper slightly shorter, both pale green with blackish blotches. For. in Hook. Flor. Bor. Am. 2, 237; Gray, Man. 28.

5. 609.

Oregon & British America, Nebraska and eastward. Though not yet found within the limits of the state, it is very likely to occur.

Perennial.

Turns somewhat as to relative lengths of glumes & floret; the leaves in some species more flat below and involute above.

M.

Culm erect from a perennial (?) root, about 1-foot high, scabrous near the panicle and pubescent below the nodes, otherwise smooth; leaves long and about 1-line wide, strongly pubescent on the upper surface, nearly smooth beneath, rough on the margins, the uppermost reduced to a loose sheath without blade; ligule a hairy fringe; sheaths loose, smooth or minutely & sparsely pubescent between the strias; panicle about 4 inches long loose and open, dis- flowered; rays in pairs and similarly subdivided above the middle, with their divisions much flattened and 2-edged or, with the axis, 3-edged, all strongly ciliate-fringed on the outer angles, somewhat erect (?); spike- lets (exclusive of awn) 3 lines long with pedicels mostly much longer and with all parts of the panicle, pale yellowish green; glumes herbaceous with hyaline margins, lanceolate, acute or somewhat acuminate, ciliate on the keel, especially above, the upper one third the longer and barely equalling the lower, its lateral nerves obsolete towards the apex; floret lanceolate, upon a distinct, rounded, smooth callus, accompanied by a conspicuous rudiment of a second flower; lower palelet of firmer texture than the

glumes, scabrous-pubescent, green, terminated by a rather stout, rough awn nearly half its own length and inserted at or very slightly below the apex; upper palea similar in texture and pubescence to the lower and quite encircling it, with two strong nerves which are excurrent at the very pubescent apex as more or less manifest teeth, strongly infolded between the nerves to form a channel that contains the pedicel which is $\frac{1}{3}$ its length, scabrous and bearing a rudiment; this consists of a manifest but undeveloped palea with an awn reaching to the top of the floret or is reduced to a small awn with indistinct scales at its base and, with its pedicel, not half that length; scales minute, ovate-acuminate inequilateral; stamens. styles orange slightly stipitate(?) and crowned with minute hairs at top; grain

Barry.

Quidnuncus Barryi, Wats.

74. 3000000

Panicle a simple slender spike.
 Spikelets solitary and sessile or in pairs with one short pedicellate, on alternate sides of the flattened, ^{or} ex-carvated rachis, 1-flowered with a rudiment of a second flower, with the rachis, smooth, three lines or less long. Glumes much compressed, coriaceous herbaceous, thin on the margins, the lower 5-nerved, the upper narrower and slightly shorter, 3-nerved. Floret included, slightly shorter than the glumes, with a minute callus. Lower palea somewhat coriaceous, indistinctly 5-nerved exserted the mid-nerve which is strong and excurrent as an awn at the minute by 2-toothed apex, bearded at the base with short unequal stiff hairs. Upper palea equalling the lower. Rudiment plumose and very minute. Stamens Scales.
 Ovary. Styles. Caryopsis terete with a large scutellum.

Annual. with the aspect of hurdus and the flowers of a Calamagrostis.

Culm from an annual root, including spike from 2 to 5 inches high with a few branches from base, smooth, slightly striate and marked with very minute dark purple lines; leaves, two or three, 3 to 6 lines long and not over a line wide, convolute, mucronulate at apex, smooth; ligule long for the size of the plant, 1 to 1 1/2 line, ~~long~~, ovate-acuminate, strongly ~~to~~ ^{margin} ~~margin~~, orate-acuminate, strongly ~~to~~ ^{margin} ~~margin~~; sheaths longer than inter-nodes, loose, striate, smooth, scarious margined; ^{spike} ~~panicle~~ 1 to 2 inches long, very narrow, ^{often} slightly recurved at apex and, with the rest of the plant, purple, smooth, alternately ex-nerved or flattened; spikelets 2 to 3 lines long, either single and sessile or in pairs, one sessile and the other on a stout grooved pedicel half its own length; glumes thick (coriaceous herbaceous) on the back, very thin or scarious on the margins, purple where exposed and punctate late dotted between the nerves, the dots more or less in two rows, the lower 5-nerved, the upper and slightly shorter 3- or (by suppression) 2-nerved, the floret about 1/2 line shorter than the lower glume; lower palea 5-nerved, the ~~lateral~~ ^{extra-lateral} nerves nearly obsolete, shining and smooth below except on the mid-nerve, scarious above, where it is often tinged with purple, terminating in two rather irregular teeth and bearing a straight and slender, exserted awn of one half to nearly its ^{own} length.

Surrounded at base, especially at ^{front} and sides, by unequal, not very abundant, white, rather coarse hairs, the longest of which are $\frac{1}{5}$ to $\frac{1}{4}$ ~~the~~ its length; upper palea equal or even slightly exceeding the lower, narrow, acute, roughish on the two nerves which terminate above in two minute setose teeth; rudiment plumose, very minute and with its hairs not exceeding the hairs at base; stamens ^{scales} grain-as long as the ^{ovary} ^{styles} upper palea, embryo conspicuous, occupying $\frac{1}{5}$ its length. May.

Yreka, E. L. Green, No 760.

The specimens being all in ripe fruit the stamens etc. remain to be described. The appearance is so much that of Nardus that one familiar with that grass would refer it to that at once. It apparently has a very short career as in May the grain was ripe and the lower sheaths and leaves withered; all parts of the plant in healthy condition are dark purple and probably ~~the~~ ^{other} were so. In only the larger specimens is the spike curved at the apex and only such have flowers in pairs. The portion of rachis opposite the excavations is sculptured, so to speak, with lines near the margins, and the withered portion

below each spikelet, is marked by two depressions. The marking on the glumes, in small light colored dots, is perhaps too minute to be given as a character, as it requires a strong magnifier; the dots are best seen by transmitted light and are nearly in two parallel lines. To make out the rudiment requires some patient manipulation and ^{it} may at first escape detection; the hairs of the rudiment are fairly abundant and about as long as itself, the whole together measuring but $\frac{2}{100}$ of an inch! The grain is about $\frac{10}{100}$ of an inch long and $\frac{2}{100}$ thick, the conspicuous scutellum $\frac{3}{100}$ inch long.

Notes on *Gramineae*

Described by S. B. Buckley in The Proceedings of
the Academy of Natural Sciences of Philadelphia
1862 - pp. 88 - 100 -

Notes made from the original specimens, with
Buckley's labels, forwarded from the Academy
Herbarium by E. Durand -

A copy sent to Doct. Gray with the specimens -

Leaving Smith
July 12 - 1862 -

Notes on Buckley's Grasses.

Polypogon alopecuroides Buckl. - I hardly know what to say to this - I guess it to be a state of Agrostis exarata, Trin. The var β . Hook. Fl. Bor. Am. or near it.

Vilfa agrostidea Buckl. Its specimen furnished with this name - A specimen of Sporobolus cryptanrus was labelled "Agrostis, northern Texas, Buckley" is perhaps it.

Sporobolus (Vilfa) angustus is S. Indicus R.Br. - This should be compared with S. tenacipennis Beauv. (Trin. Le. t. 26) if the same the latter is the older name & should be adopted - What a way Buckley has of making Vilfa & Sporobolus reciprocal as genus & subgenus -

Vilfa ~~alta~~ rigida Buckl. is Calamagrostis gigantea Nutt & C. longifolia Hook - You have adopted the latter name in the Manual but Nuttall's is prior.

Vilfa (Sporobolus) alta is Eatonia obtusata Gray - The label was marked Eatonian by me a long time ago

Sporobolus (Vilfa) arenaceus is S. asperifolius Nees & Meyen (teste Munro) Buckley described from Wrights 737 without credit.

Wralepsis elongata, Buckl. is Tricuspis trinerviolumis Munro & Ass. - It is near the Mexican Fox. but readily distinguished by its 3-nerved upper glume - It is 2054 of Wrights & 307 of Drummonds Collections

Vilfa (Sporobolus) varians no specimens -

2

Sporobolus (Vilfa) diffusipennis is S. airoides Torr.

Vilfa (Sporobolus) fabiana is S. coronandensis Kunth,
non Trin. An old & widely diffused species as may be
inferred from the following synonyms, quoted by Munro:
S. commutatus Rth & Trin; S. argutus Rth. S. arkansana Trin;

Vilfa ambigua Steud. - 1972 Wright & 377 Drummond's 2^d coll
are the same -

Agrostis agnatica Not in the parcel.

Agrostis scalariscula is A. scalaris Willd.

Agrostis albicans is A. exarata Trin; a slender form of
this very variable species which was labelled A. Oregonensis
by Nutt.

Muhlenbergia arenicola is M. gracillima Torr. in Bot.
Whipp. It is 735 Wright & 768 & 769 Steud. n. Mex. Coll.

M. monticola is M. sylvatica Torr. var. "ligulis elongatis
foliisque angustis" Munro Ann. - 731 Wright.

M. paniculata seems to be a form of M. Willdenowii Trin.

Muhlenbergia Texana. There is no specimen so labelled but
there is one marked Agrostis barbata Buehl. which from
the description is the plant intended & is Sporobolus
truncatus Rth in which the lower palea often
bears a slight mucro or awn.

Eulamagrostis Oregonensis

Eulamagrostis rubescens

Eulamagrostis albicans.

You have so much better material than I have for making out these that I leave them for you -

Aristida curtisetia, is a depauperate state of A. purpurea Nutt. - Similar specimens were collected on Fitzgerald's Expedition.

Aristida pauciflora, is A. oligantha Michx., of which I have specimens collected by Buckley in Illinois.

Aristida filipendula, is A. purpurea Nutt., a form near the var. Berlandieri Trin. - This grass is so variable that it is almost impossible to define the same characterize the varieties. Each new locality would afford a Buckleyan species.

Bouteloua pumila is B. polystachya, Torr. in Willkinson's Rep. (Pacific R.R. Survey vol 5) t. 10. A small flowered form agreeing with the figure above quoted.

Bouteloua brevifolia is B. eriopoda, Torr. The plant has Fendler's ticket no 946, which in Herb Torr. is Pleuraphis while B. eriopoda is 950 -

Wrolepis (Friesii) brevispidata is Leptochloa dubia Nees, HBK. t. 694 - It is 767

Agrost. Bras. p. 433; Chloris dubia

Wright's Cole.

Wrolepis (Friesii) pilosa is Friesii acuminata Munro in Herb. ~~Hort.~~ Benth. Described from Wright 781 without credit. Mixed with this is a specimen of J. acuminata Thunb.

4

(*Tridoria arenacea* H. B. K. t 48) which Buckley fortunately did not see or he should have had another name -
(*Tricuspis*)

Urolepis pinnoides is *Sclerachloa californica* Munro in Benth. Plant. Hartney. This is taken from Fendler 932 & is consequently *Eragrostis Fendleriana* Steud., Syn. Plant. Glau 1. p. 278 -

Urolepis (*Tricuspis*) *densiflora* is what I have taken for *Mindrosia stricta* Nutt. of which I have no authentic specimen. *Scindheims* 737 which I have from you as *Mindrosia stricta* is *Tricuspis allerseni* Munro in Herb. Thurb. Nos 278 & 297 of Munro's 2^d Coll are what I consider to be *M. stricta* if I am right then Buckley's plant would be *Tricuspis stricta*.

Urolepis (*Tricuspis*) *composita*. I labelled these specimens some years ago *Leptochloa fascicularis* Kunz & see no reason to change it. The specimens were collected in New Mexico by Dr. Woodhouse & are the large form common in that region - "Leaves at the joints of the culms without sheaths and stems" Oh S. B. Buckley!

Urolepis (*Tricuspis*) *pilosa* (Nis) is *Tricuspis nuttiana* Torr in Botany of Whipp. Rep. p. 156. It is a large form with minute sheaths and Wright's collection without credit, as usual. The original specimens from which Torrey's description was drawn are smooth & not well developed. ~~A minute Munro's~~. The lower palea often bears a minute awn. There seems to be some confusion in Wright's numbers. I have it from Torrey as 180-291-779 & 2046. In the Smithsonian Herb it is 2056 & Munro quotes 780 for the same. I have also 2046 also as

5-

an Eragrostis - Buckley made so many new species that he did not have names to go round so "pilosa" has to serve twice -

Pleuraphis nuttiana. I think this may be a good species. I have Fendler 946, labelled P. fumensis by Torrey. This differs in the glumes of the central spikelets which are cuneate-obovate, 5-7 nerved and do not enclose the florets but form a sort of involucre as in Elymus. The glumes of the central spikelets 2-cleft, 5-nerved, the nerves confluent below, the ^{midrib} ~~midrib~~ ^{produced as an awn} shorter than the laciniate-fringed laciniae; lower portion of perfect floret fruticose.

Glyceria bulbosa, A diminutive sterile culm and two detached spikelets (labelled by Nuttall Bromus nuttiana) are the materials upon which Buckley ventures to describe a species. When I went over the grasses in Herb. Acad. I took this fragment to belong to what I had called G. bulbosa in Torr. Bot. Sept. Exped. & so labelled it. Now upon examining it as well as I can without breaking up a spikelet I think it belongs to Melica pumila Nutt & G. bulbosa. Hook in Geysers (Oregon?) plants - (I sent you a note on that species winter before last - please compare) The florets in this are more pointed but the glumes have the united veins of that species. I can't quite satisfy myself about it.

Glyceria leptostachya. This is in the same sheet with this G. microstachya, both names being stolen from Nuttall, I cannot see any marked difference

between them, they are very near G. pallida Trin⁶
except that the palea lower palea is not distinctly
toothed, and may be G. pauciflora Pers. The descr.
of which is very meager.

Glyceria stricta Is what seems to be an abnormal
specimen of Vilfa aspera Beauv. In the lower part
of the panicle the spikelets are 1-flowered while above
there are several florets in each spikelet. The paleae
of which show a tendency to become leaf-like, a
disposition which is more marked in some of Drum-
mond's specimens, which I suppose are V. Drummondii
Trin.

Glyceria microtheca V. supra. G. leptostachya

Glyceria montana, is Poa airoides Nutt Gen. Poa

Nuttalliana Raven & Schult. Festuca? Nuttalliana Rth.

This old plant is described as a new species not-
withstanding Buckley had a part of the Lycopodium on
the label before him. In labelling Engelmann's Vilfa
grasses I gave the specific name Nuttalliana
as airoides had been taken up by Steudel. But I
overlooked the note on p 426 Steud. stating that he had
mistaken the genus. As the name airoides is uncon-
firmed & is the oldest it may as well stand.

Poa lupiflora Is not this your P. alberta? I don't know
that species for certain. Poa are tedious. Name
stolen.

Poa tenuifolia, Nuttall's name for one of those
troublesome & best Miss which you can better make out.

7

Poa densiflora, is P. arachnifera var. β. Torr in Munro's
Rep. p. 301. The ~~copious~~ arachnoid wool to abundant
in the specimens from which the species was descri-
bed is nearly wanting in these ~~specimens~~. Specimens
in the same set vary greatly in this respect.

Eragrostis diffusa, is E. Purshii Bernh. It is a
wonder that Buckley was contented with one species
from this set - I have marked a specimen which
is like one sent to Munro (2046 Wright in some herb.)
who returned the following note "E. delicatula Fris.
Identical with specimens from Buenos Ayres. I think
it may be Poa tenella Pursh; P. Linkii Rth and
therefore may be a state of E. Purshii, as you suspect.
In some respects I find Eragrostis more liable to variety
than any other genus." In Herb. Torr. & Smithsonian. I
find 2046 attached to E. delicatula, E. pilifera &
Franseria mutica -

Eragrostis curtispedunculata (labelled brevipedicellata) I
have nothing in herb to match this but think I have
seen it among your S. American specimens.

Eragrostis sessilis is Leptochloa rigida Munro in
Herb. Trin. Coll. Dubl. and as far as I know unpub-
lished. It is ~~no~~ 766 Wright. (+ 7091 in Herb. Torr.)

Festuca gracilentia is, I think, a very young &
attenuate F. microstachys Nutt.

Festuca reflexa, is F. microstachys Nutt. var. Freryana Torr. in Whipp. p. 156. This is just the plant noticed by Torrey who I think correctly refers it to the multi-form F. microstachys. Name stolen from Nuttall.

Festuca pusilla, I hardly know what to call it unless it is a form of F. rugosa.

Bromus breviaristatus, as I had already labelled it. It is B. and so called it in Torr. Bot. Expt. Exped. It is Ceratochloa breviaristata Hook. If Ceratochloa is reduced to a synonym of Bromus this name will have to stand.

Bromus viridis is Ceratochloa grandiflora Hook. In Torr. Bot. Expt. Exped. I called it B. Hookerianus as the specific name was taken up - The synonymy was on the label but Buckley is above synonyms.

Bromus setaceus is B. sterilis L. with rays of the panicle more compound than in the N.Y. specimens.

Uniola (Brizopyrum) flexuosa is a slender form of Brizopyrum spicatum Hook.

Elymus interruptus. The Texas species are very troublesome - I have a set of regular puzzles. I wish you would try what you can make of this. It seems to me to be a smooth & drawn out E.

Canadensis - Cf. 571 Fendl.

9

Elymus triticoides very near 2072 Wright, which Munro says is a form of E. condensatus Nees.

Elymus glaucus I once labelled this E. hirsutus L. and still think it is so but I have no authentic specimens for comparison.

Friestum glabrum, is Ariza dunthovoides Trin
Deschampsia dunthovoides Munro in Bent's Plant
Hortney. = 2027 Hartney Cat. Coll.

Friestum interruptum is F. elongatum H. B. K.
occurs in Scribner's & Wright's earlier collections

Friestum canescens, I labelled this F. cernuum Trin?
when I went over the Academy Grasses. I have
no better materials now for a satisfactory determination.
I think you have identified F. cernuum among some
of the Japanese grasses.

Microchloa occidentalis is M. brevis Raven & Sch.